

Appl. No. 10/803,191  
Reply to Office Action of December 27, 2005

### **REMARKS**

Applicants appreciate the thorough examination of the application that is reflected in the Office Action dated December 27, 2005, and the Examiner's indication that claims 19, 20 and 39-45 have been allowed.

Applicants amend independent claim 1 to recite "a first antenna configured to receive RFID signals, " and "a second antenna configured to receive said RFID signals from said first antenna." Applicants amend independent claim 21 to recite "a first antenna at a first location of the RFID object, said first antenna configured to receive RFID signals," and "a second antenna at a second location of the RFID object other than said first location, said second antenna configured to receive said RFID signals from said first antenna." Applicants also amend dependent claims 47 and 49 to recite that "said transmission line carries said RFID signals from said first antenna to said second antenna." These amendments are supported, for example, by FIGS. 2-6 of the application and their corresponding descriptions (e.g., [0023] of the present Application).

Claims 1-50 (4 independent claims; 50 total claims) are pending in the application. Reexamination and reconsideration of the application are respectfully requested.

### **Art-based Rejections**

#### **Claims 1 and 21**

The Office rejects claims 1-8, 10-13, 16, 18, 21-28, 30-33, 36, 38 and 46-50 under 35 U.S.C. 103(a) as being unpatentable over Eberhardt et al. (U.S. Pat. 6,107,920) (hereinafter referred to as "Eberhardt") in view of Duan (U.S. Pat. 6,147,606) (hereinafter referred to as "Duan"), and rejects claims 9, 14, 15, 17, 29, 34, 35 and 37 further in view of Platt (U.S. Pat. 5,825,291) (hereinafter referred to as "Platt").

Applicants respectfully traverse this rejection for at least the following reasons.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify a reference or to combine the teachings of multiple references. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest all of the recited claim limitations. Of course, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must

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both be found in the prior art, not in Applicant's disclosure. Applicants submit that all of the criteria have not been met in this case.

Claim 1 relates to relay device for a Radio Frequency Identification (RFID) transponder. The relay device comprises:

a first antenna configured to receive RFID signals;  
a second antenna configured to receive said RFID signals from said first antenna;  
a transmission line coupling said first antenna and said second antenna; and  
an impedance adjusting circuit coupled to said transmission line and configured for coupling to the RFID transponder. (Emphasis added.)

Applicants respectfully traverse the rejection of claim 1 for at least the following reasons.

The Eberhardt reference discusses structural details of a radio frequency identification tag 14. Applicants note that the RFID tag 14 of the Eberhardt reference is a multi-part assembly that includes a first antenna element 24 having a first surface 18 including a first coupling region 28, and a second antenna element 26 including a second coupling region 30. As shown in FIG. 1 of the Eberhardt reference, "each of first coupling region 28 and second coupling region 30 includes a conductive pad area for electrically coupling to chip assembly 12 by means of a layer 34 of anisotropic adhesive (FIG. 2)." See col. 4, lines 41-44 of the Eberhardt reference.

Applicants submit that the Eberhardt reference does not discuss or provide any details regarding how the first antenna element 24 and the second antenna element 26 operate especially regarding signals received or transmitted by those antenna elements 24, 26. Notably, there is no mention in the Eberhardt reference as to the second antenna element 26 receiving RFID signals from the first antenna element 24. Thus, Applicants submit that the Eberhardt reference fails to disclose, for example, "a second antenna configured to receive said RFID signals from said first antenna," as recited in claim 1.

Applicants submit that the Duan and Platt references are similarly deficient.

Independent claim 21 recites "a first antenna at a first location of the RFID object, said first antenna configured to receive RFID signals," and "a second antenna at a second location of the RFID object other than said first location, said second antenna configured to receive said

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RFID signals from said first antenna." Applicants submit that claim 21 is also patentable for at least the reasons stated above with respect to claim 1.

The Office acknowledges that the Eberhardt reference fails to teach or suggest the "impedance adjusting circuit" recited in claims 1 and 21, and cites the Duan reference as teaching these limitations. Specifically, the Office cites col. 2, lines 40-55 of the Duan reference which discloses:

A radio frequency identification transponder (RFID tag) in accordance with the principles of the present includes a tag antenna having a gain and an input impedance. The tag also includes RFID circuitry, which may be in the form of an RFID tag integrated circuit, the RFID circuitry also being characterized, in part, by an input impedance. According to the principles of the present invention the tag's read distance is maximized by tuning the tag antenna impedance and/or gain, given a load  $Z_L$ . That is, in an illustrative embodiment, the assumption is made that a load impedance, such as presented by an RFID tag integrated circuit, is fixed and the tag antenna impedance is adjusted to maximize the tag read distance for the prescribed load impedance. Tag antenna geometrical parameters may affect the impedance of the antenna, the gain of the antenna, or both. However, in general, the imaginary part of the antenna impedance is chosen as the negative of the imaginary part of the RFID circuitry's impedance. Additionally, the real part of the tag antenna's impedance is selected by adjusting the geometrical parameters of the antenna so that an antenna criterion, embodied in the following expression, is maximized. (col. 2, lines 40-55 of the Duan reference; emphasis added.)

Applicants respectfully submit that the Duan reference merely teaches that the impedance of the tag antenna can be adjusted by adjusting the geometrical parameters of the antenna as opposed to, "an impedance adjusting circuit coupled to said transmission line and configured for coupling to the RFID transponder," or "an impedance adjusting circuit coupling the RFID transponder and said transmission media," as recited in claims 1 and 21, respectively. As such, Applicants submit that the cited references also fail to teach or suggest concepts, such as, "an impedance adjusting circuit coupled to said transmission line and configured for coupling to the RFID transponder," or "an impedance adjusting circuit coupling the RFID transponder and said transmission media," as recited in claims 1 and 21, respectively.

Accordingly, for at least the reasons stated above, Applicants respectfully request reconsideration and withdrawal of the rejections of independent claim 1, along with dependent claims 2-18 and 47-48; and claim 21, along with dependent claims 22-38 and 48-49.

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In conclusion, for the reasons given above, all claims now presently in the application are believed allowable and such allowance is respectfully requested. Should the Examiner have any questions or wish to further discuss this application, Applicant requests that the Examiner contact the undersigned attorney at (480) 385-5060.

If for some reason Applicant has not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

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Dated: January 30, 2006

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